

U.S. Application Serial. No. 10/847,493
Attorney Docket No.: 6794.US.D1
Amendment dated September 22, 2005
Reply to Office Action of March 23, 2005
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REMARKS

Reconsideration and allowance of the above-referenced application are respectfully requested.

Claims 3, 11 and 16 are currently pending.

Rejection of Claims 3, 11 and 16 Under 35 U.S.C. 102(b)

The Examiner has rejected claims 3, 11 and 16 under Section 102(b) as being anticipated by Coleman et al. In particular, the Examiner asserts that Coleman et al. teach an isolated adw2 backbone having an insertion of arginine and alanine at amino acid position 123 of hepatitis B surface antigen. Further, the Examiner contends that the mutant is employed as an immunogen and commercial kits are taught.

In response, Applicants respectfully traverse the rejection of claims 3, 11 and 16 under Section 102(b) as being anticipated by Coleman et al. More specifically, it is asserted that Coleman et al. disclose an insertion mutant in which both arginine and alanine are inserted at amino acid position 123 in an adw2 backbone. However, the claimed invention does not relate to an insertion mutant. The claimed invention, in contrast, relates to a mutant wherein alanine has been replaced by threonine at amino acid position 123. Thus, whereas Coleman et al. disclose an "insertion mutant", the claimed invention relates to a "substitution mutant". The resulting amino acid sequence of the mutant of Coleman et al. is therefore quite distinct from the mutant of the claimed invention.

In view of the above, it is submitted that the rejection of claims 3, 11 and 16 under Section 102(b) has been overcome and should be withdrawn accordingly. The claimed invention is not disclosed by Coleman et al., and thus the rejected claims are not anticipated by Coleman et al.

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Rejection of Claims 3, 11 and 16 Under 35 U.S.C. 103(a)

The Examiner has rejected claims 3, 11 and 16 under Section 103(a) as being obvious over Primi et al. In particular, the Examiner contends that Primi et al. disclose an isolated mutant hepatitis B surface antigen protein that comprises an amino acid sequence in which the amino acid at position 123 is not a conserved amino acid for its position. The Examiner acknowledges, however, that Prim. et al. fail to teach a mutant hepatitis B surface antigen protein that comprises an amino acid sequence in which the threonine at position 123 is replaced by alanine.

The Examiner also contends that it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the proline at position 123 of the HbsAg mutant with alanine since alanine and proline are considered to be conservative substituents. Further, the Examiner contends that the replacement of threonine at position 123 with alanine would be a non-conservative substitution which falls within the scope of Primi et al.'s broader claim.

In response, Applicants respectfully traverse the rejection of claims 3, 11 and 16 under Section 103(a) as being obvious over Primi et al. More specifically, Applicants contend that Primi et al. disclose a mutant hepatitis B surface antigen protein in which the amino acid at position 121 is not cysteine and at least one of the amino acids at positions 120, 122, 123, 147 or 149 is not a conserved amino acid for its position. In contrast, in the claimed protein, position 121 is cysteine. Thus, the disclosure of Primi et al. teaches away from the claimed invention.

Further, as noted above, the Examiner asserts that it would have been obvious to the skilled artisan to substitute alanine for proline and then threonine for alanine at amino acid position 123. Thus, two substitutions would be required, substitutions which one of ordinary skill in the art would not have been motivated to make based upon the teachings and suggestions of Primi et al. Additionally, the claimed invention relates to one substitution only at position 123 (i.e., the substitution of threonine for alanine). Proline is not at issue.

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In view of the above, it is submitted that one of ordinary skill in the art would not have been motivated to have created the claimed invention at the time the invention was made based upon the teachings and suggestions of Primi et al. The claimed invention is not rendered obvious over Primi et al.; thus, the Section 103(a) rejection of claims 3, 11 and 16 should be withdrawn.

In conclusion, it is believed that the subject application is in condition for allowance and Notice to that effect is respectfully requested.

Should the Examiner have any questions concerning the above, she is respectfully requested to contact the undersigned at the telephone number listed below.

Respectfully submitted,
Coleman, et al.

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